PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Kiyotaka YASUDA et al.

Serial No. (unknown)

Filed herewith

HYDROGEN STORAGE MATERIAL AND
PROCESS OF PRODUCING THE SAME

PRELIMINARY AMENDMENT

Commissioner for Patents

Washington, D.C. 20231

Sir:

Prior to the first Official Action and calculation of the filing fee, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Please replace the paragraph beginning at page 2, line 27, with the following rewritten paragraph:

--As a result of extensive studies, the present inventors have found that the above object is accomplished by a hydrogen storage material of AB_5 structure having a specific nonstoichiometric composition (B site rich), particularly a composition having $4.1<Ni\leq4.3$ and $0.4<Mn\leq0.6$, and the c-axis of which is in a given range. They have also found that such a hydrogen storage material is obtainable with the above-described specific composition when a casting temperature and heat treating conditions satisfy a given relationship.--

Please replace the paragraph beginning at page 7, line 6, with the following rewritten paragraph:

--Raw materials of a hydrogen storage material were weighed to make the alloying composition shown in Table 1 and mixed up. The mixture was put in a crucible, and the crucible was set in a high frequency melting furnace. After evacuating to a degree of vacuum of 10^{0} to 10^{-5} Torr, the mixture was heat melted in an argon gas atmosphere and cast into a copper casting mold of water cooling type at 1350°C (pouring temperature: 1250°C) to obtain an alloy. The resulting alloy was heat treated in an argon atmosphere under the conditions shown in Table 2 to obtain a hydrogen storage material. Reference Example 1 shows the characteristics of a conventional alloy having a Co content of 10 wt%, and Reference Examples 2-1 and 2-2 show the characteristics of conventional alloys having a Co content of 5 wt%.--

IN THE CLAIMS:

Amend the claims as follows:

--3. (amended) The hydrogen storage material according to claim 1, wherein said lattice length on the c-axis is from 406.6 to 407.1 pm.--

--4. (amended) The hydrogen storage material according to claim 1, wherein (a+b+c+d) or (a+b+c+d+e) is 5.2 or greater and smaller than 5.3, and said lattice length on the c-axis is 406.2 or greater and smaller than 406.8 pm.--

--5. (amended) The hydrogen storage material according to claim 1, wherein (a+b+c+d) or (a+b+c+d+e) is from 5.3 to 5.45, and said lattice length on the c-axis is from 406.8 to 407.3 pm.--

Add the following new claims:

--8. (new) The hydrogen storage material according to claim 2, wherein said lattice length on the c-axis is from 406.6 to 407.1 pm.--

--9. (new) The hydrogen storage material according to claim 2, wherein (a+b+c+d) or (a+b+c+d+e) is 5.2 or greater and smaller than 5.3, and said lattice length on the c-axis is 406.2 or greater and smaller than 406.8 pm.--

--10. (new) The hydrogen storage material according to claim 2, wherein (a+b+c+d) or (a+b+c+d+e) is from 5.3 to 5.45, and said lattice length on the c-axis is from 406.8 to 407.3 pm.--

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R E M A R K S

The above changes correct typographical errors in the specification and place this national phase application in the same condition as it was during the international phase, with the multiple dependencies in the claims being removed.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the specification:

Paragraph beginning at line 27 of page 2 has been amended as follows:

As a result of extensive studies, the present inventors have found that the above object is accomplished by a hydrogen storage material of AB_5 structure having a specific ~~stoichiometric~~nonstoichiometric composition (B site rich), particularly a composition having 4.1<Ni£4.3 and 0.4<Mn£0.6, and the c-axis of which is in a given range. They have also found that such a hydrogen storage material is obtainable with the above-described specific composition when a casting temperature and heat treating conditions satisfy a given relationship.

Paragraph beginning at line 6 page 7 has been amended as follows:

Raw materials of a hydrogen storage material were weighed to make the alloying composition shown in Table 1 and mixed up. The mixture was put in a crucible, and the crucible was set in a high frequency melting furnace. After evacuating to a degree of vacuum of 10^{-4} to 10^{-5} Torr, the mixture was heat melted in an argon gas atmosphere and cast into a copper casting mold of water cooling type at 1350°C (pouring tempera-

ture: 1250°C) to obtain an alloy. The resulting alloy was heat treated in an argon atmosphere under the conditions shown in Table 2 to obtain a hydrogen storage material. Reference Example 1 shows the characteristics of a conventional alloy having a Co content of 10 wt%, and Reference Examples ~~1-2~~ 1 and ~~1-3~~2-2 show the characteristics of conventional alloys having a Co content of 5 wt%.

The claims have been amended as follows:

3. (amended) The hydrogen storage material according to claim 1 ~~or 2~~, wherein said lattice length on the c-axis is from 406.6 to 407.1 pm.

4. (amended) The hydrogen storage material according to claim ~~1 or 2~~, wherein (a+b+c+d) or (a+b+c+d+e) is 5.2 or greater and smaller than 5.3, and said lattice length on the c-axis is 406.2 or greater and smaller than 406.8 pm.

5. (amended) The hydrogen storage material according to claim ~~1 or 2~~, wherein (a+b+c+d) or (a+b+c+d+e) is from 5.3 to 5.45, and said lattice length on the c-axis is from 406.8 to 407.3 pm.